Amendments to the Claims: This listing of claims will replace all prior versions, and listings, of claims in the application

Listing of Claims:

1. (Original) A method for producing a mixture of chlorine and chlorine dioxide comprising the steps of:

introducing an aqueous solution of an alkali metal chlorate with an inorganic acid into a reactor and permitting at least 90% by volume of said alkali metal chlorate to react with said inorganic acid to produce gaseous chlorine, chlorine dioxide and steam in a gas head space of said reactor;

removing said gaseous chlorine, chlorine dioxide and steam from said reactor; and

dissolving said gaseous chlorine, chlorine dioxide, and steam in water to produce a product stream.

2. (Canceled)

3. (Original) A method according to claim 1 including the step of selecting hydrochloric acid as said inorganic acid.

4. (Original) A method according to claim 3 including the step of establishing the concentration of hydrochloric acid between 5% and 40% by weight.

5. (Currently Amended) A method according to claim 1 including the step of establishing an initial concentration of from 200 to 700 grams per liter of alkali metal chlorate in said aqueous solution of alkali metal ~~chloride~~chlorate.

6. (Original) A method according to claim 1 including the step of maintaining said alkali metal chlorate solution and said inorganic acid at a temperature between 20°C and 60°C in order to produce in said gaseous product stream chlorine/chlorine dioxide ratios greater than 2.5.

7. (Original) A method according to claim 5 including the step of selecting sodium chlorate as said alkali metal chlorate.

8. (Original) A method according to claim 1 including the step of using a horizontal reactor wherein said aqueous solution of alkali metal chlorate flows through said reactor and said inorganic acid is introduced into said flow of aqueous solution of alkali metal chlorate in a manner to permit said chlorine, chlorine dioxide and steam to rise through said aqueous solution of alkali metal chlorate at a several locations along said flow.

9. (Original) A method according to claim 8 including the step of establishing said flow of alkali metal chlorate successively through a plurality of individual horizontal reactors and adding additional inorganic acid to said flow prior to each successive reactor.

10. (Original) A method according to claim 8 including the step of withdrawing a product stream containing chlorine, chlorine dioxide and steam from each of said reactors.